

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the above-referenced application:

1 1. (Currently amended) A method for filtering a received signal in a
2 wireless receiver, comprising:

3 providing a received signal to a multiple-stage baseband filter chain located
4 between a downconverter and a demodulator, the multiple-stage baseband filter chain
5 comprising an input, a variable gain amplifiers and an output; and

6 inverting the impedance of the received baseband signal in ~~the~~ a first stage of a
7 multiple-stage baseband filter chain using an inductance applied at ~~the~~ an output of ~~the~~
8 a first stage variable gain amplifier, the baseband filter chain arranged such that a
9 feedback path loop is located between an output of ~~the~~ a variable gain transconductance
10 amplifier and ~~the output an input of the filter chain~~ transconductance amplifier.

1 2. (Currently amended) The method of claim 1, wherein inverting the
2 impedance of the received signal at the output of the first stage variable gain amplifier
3 comprises using a voltage controlled current source to transform the inductance applied
4 to the received signal to a capacitance.

1 3. (Original) The method of claim 2, further comprising implementing
2 the voltage controlled current source as a pair of transconductance amplifiers.

1 4. (Previously presented) The method of claim 3, further comprising
2 inserting a capacitance at the output of the filter chain.

1 5. (Currently amended) A low-noise baseband filter for a wireless
2 receiver, comprising:

3 a multiple-stage filter chain, a first stage of the multiple-stage filter chain
4 comprising:

5 an amplifier; ~~and~~

6 an impedance inverter applied at the output of the amplifier and
7 configured to transform inductance applied to a received baseband signal to a
8 capacitance, the impedance inverter ~~having a feedback loop located between an~~
9 ~~output of the amplifier and an output of the low-noise filter arranged such that a~~
10 ~~feedback path is located between an output of a first transconductance amplifier~~
11 ~~and an input of the first transconductance amplifier, the feedback path including~~
12 ~~a second transconductance amplifier; and~~

13 a bi-quad filter coupled to the output of the impedance inverter.

1 6. (Canceled)

1 7. (Currently amended) The low-noise baseband filter of claim 5,
2 wherein the impedance inverter further comprises:

3 ~~a pair of transconductance amplifiers; and~~

4 at least one capacitance coupled to the output of one of the first and second
5 transconductance amplifiers.

1 8. (Original) The low-noise filter of claim 7, wherein the impedance
2 inverter removes direct current (DC) offset present at the input of the amplifier.

1 9. (Currently amended) A portable transceiver, comprising:
2 a modulator configured to receive and modulate a data signal;
3 an upconverter configured to receive the modulated data signal and provide a
4 radio frequency (RF) signal;
5 a transmitter configured to transmit the RF signal; and
6 a direct conversion receiver having a baseband filter chain including an
7 amplifier, a bi-quad filter and an impedance inverter configured to transform inductance
8 applied to a received signal to a capacitance, the impedance inverter having a feedback
9 path loop located between an output of a first transconductance amplifier and an input
10 of the first transconductance amplifier, the feedback path including a second
11 transconductance amplifier ~~an output of the amplifier and an output of the filter.~~

1 10. (Canceled)

1 11. (Currently amended) The portable transceiver of claim ~~10~~ 9,
2 wherein the impedance inverter further comprises:
3 ~~a pair of transconductance amplifiers; and~~
4 at least one capacitance coupled to the output of one of the first
5 transconductance amplifier[s].

1 12. (Original) The portable transceiver of claim 11, wherein the
2 impedance inverter removes direct current (DC) offset present at the input of the
3 amplifier.

1 13. (Currently amended) A portable transceiver, comprising:
2 means for modulating a data signal;
3 means for upconverting the modulated data signal and provide a radio frequency
4 (RF) signal;
5 means for transmitting the RF signal;
6 means for converting a received signal to a baseband signal;
7 means for amplifying the baseband signal; and
8 means for inverting the impedance of the received baseband signal at the output
9 of the means for amplifying means in a first stage of a multiple-stage baseband filter
10 chain to transform inductance applied to ~~a~~ the received baseband signal to a
11 capacitance, the means for inverting the impedance having a feedback path loop that
12 bypasses the means for amplifying means.

1 14. (Original) The portable transceiver of claim 13, further comprising
2 voltage controlled current source means for inverting the impedance of the received
3 signal at the output of the amplifier to transform the inductance applied to the received
4 signal to a capacitance.

1 15. (Currently amended) A system for removing direct current (DC)
2 offset from a received signal, comprising:
3 a variable gain amplifier configured to amplify a downconverted representation
4 of a received radio frequency (RF) signal to generate an amplified RF baseband signal;
5 and
6 a gyrator-generated inductance applied at the output of the variable gain
7 amplifier in a first stage of a multiple-stage baseband filter chain, the gyrator-generated
8 inductance configured to transform inductance present at the output of the variable gain
9 amplifier to a capacitance, the gyrator-generated inductance and the variable gain

10 amplifier arranged such that the amplified RF baseband signal is not applied at an input
11 of the variable gain amplifier, the gyrator-generated inductance implemented via a first
12 transconductance amplifier having differential inputs and a second transconductance
13 amplifier having a single input.

1 16. (Previously presented) The system of claim 15, wherein the gyrator-
2 generated inductance adds a high pass filter pole that is not a function of the
3 transconductance of the variable gain amplifier.

1 17. (Original) The system of claim 15, wherein the gyrator-generated
2 inductance shunts excess DC current present at the output of the variable gain amplifier
3 to ground.

1 18. (Original) The system of claim 15, wherein, at a frequency above a
2 high-pass cutoff frequency, the gyrator-generated inductance appears as a high
3 impedance at the output of the variable gain amplifier.